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Link 16 Aided Moving Target Engagement

Richard De Fabio
BAE SYSTEMS Wayne, NJ USA
richard.defabio@baesystems.com
(973) 305-2422

Overview

- **What is Link 16?**
- **Where is Link 16 Deployed?**
- **What is Needed for a Weapon Data Link?**
- **Link 16 as the Solution for Weapon Data Links**
- **Examples of Link 16 Aided Moving Target Engagement**
 - Connectivity Among Deployed Assets
 - Optimize Sensors to Weapons Links
 - Navigation Capability
- **Summary**

What is Link-16?

- Link-16 is a secure, high A/J tactical CNI system which uses precise time to provide:
 - **C**ommunication
 - **N**avigation
 - **I**dentification

It is more than a data link!!!

Link-16 is a CNI System

COMMUNICATION

- Highest A/J CNI System Deployed
- Non-Nodal
- Secure
- High Capacity
- Broadcast or Point-to-Point

NAVIGATION

- Common Reference Frame (WGS-84 and Relative Grid)
- High Accuracy

IDENTIFICATION

- Direct
- Indirect



What is Needed for a Weapon Data Link?

- **High Performance in Flight Re-Targeting**
- **Precise Target Positioning**
- **Connectivity with Theatre Assets**
 - Interoperation with Sensor and Shooter Platforms
 - Accurate Position Location and Reporting
 - Eliminate Collateral Damage and Fratricide
- **Be Realizable in Time and \$**
 - Use What is Deployed

High Performance Re-Targeting

- **Dependable, High A/J**
 - 51 Frequencies switched at a rate > 76K/sec
- **Fast access**
 - No access request delays
- **Low latency**
 - < 50 ms possible
- **Multiple missiles**
 - Simultaneous operation using multi-nets
- **Long Range**
 - 300nm
- **Relay capability**
 - Over-the-horizon operation
- **Secure**
 - TSEC & MSEC
 - Type 1 Encryption
- **Non-Nodal**
 - No Single Point Vulnerability

Precise Target Positioning

- **Sensor, Shooter & Weapon all in same Link-16**

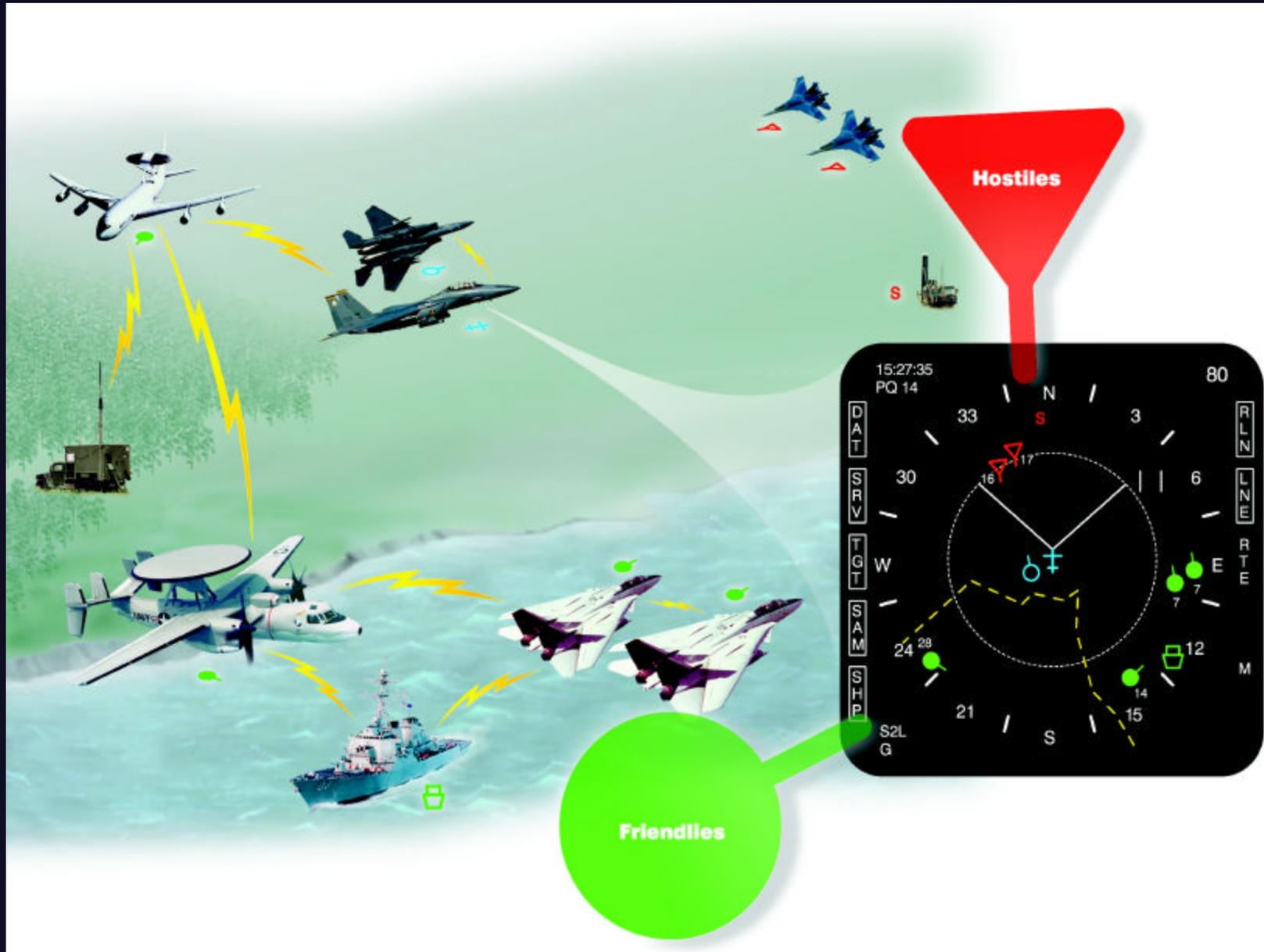
Relative/Geodetic Navigation Grid

- **Data Reference is common**
- **Sensor Fusion**
- **“Smaller Basket” for terminal seekers**
- **Link 16 Navigation capability**
 - Backup for GPS

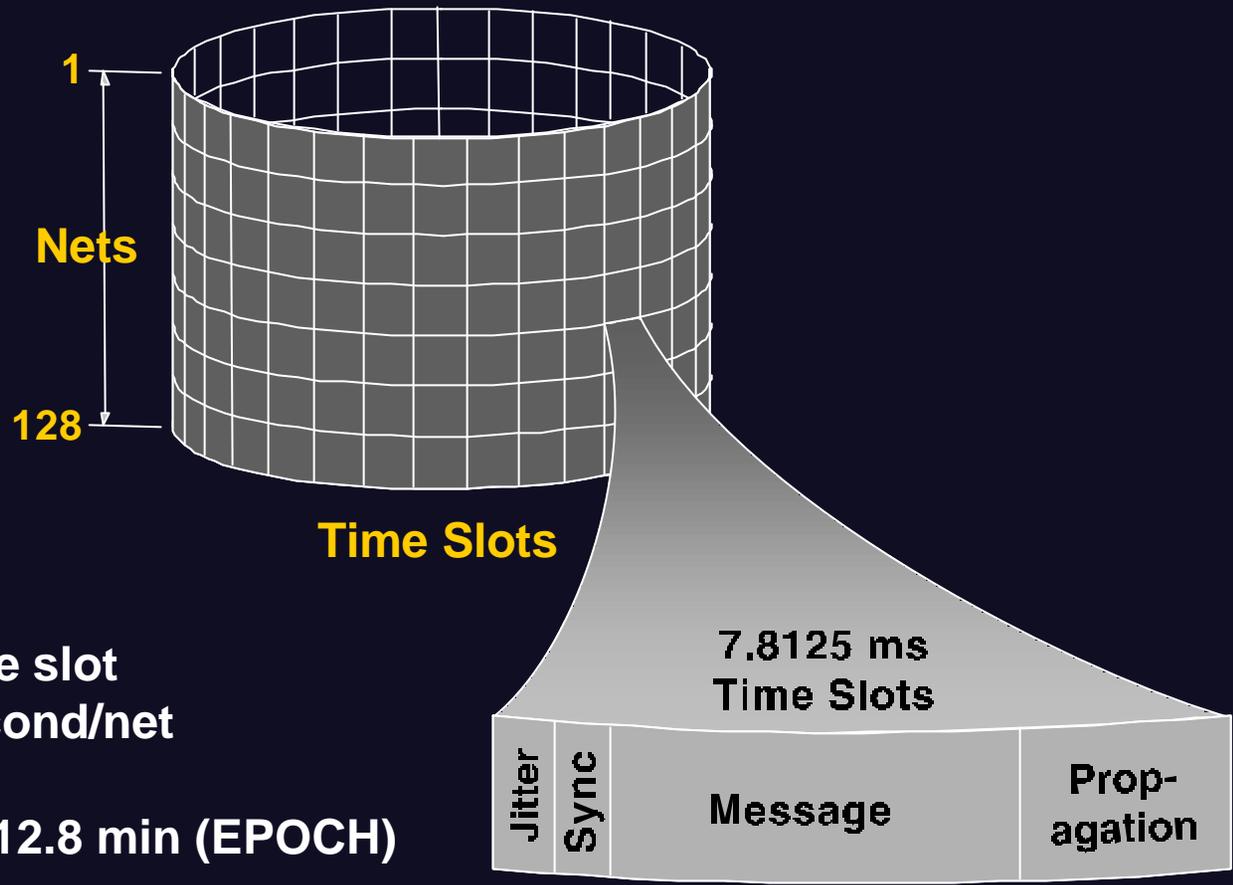
Connectivity with Theatre Assets

- **Rapid In-Flight Target Update and Re-targeting**
 - Any Sensor in Link-16 Community can Re-target
 - Non-Organic Radar/Passive Targeting
- **Link 16 Navigation Capability**
- **Situation Awareness in Shooter**
 - Autonomous force recognition via Link-16
- **Situation Awareness in Missile**
 - Comparison between Link-16 community members and target
 - Reduces Fratricide
 - Collateral damage

Link 16 Identification

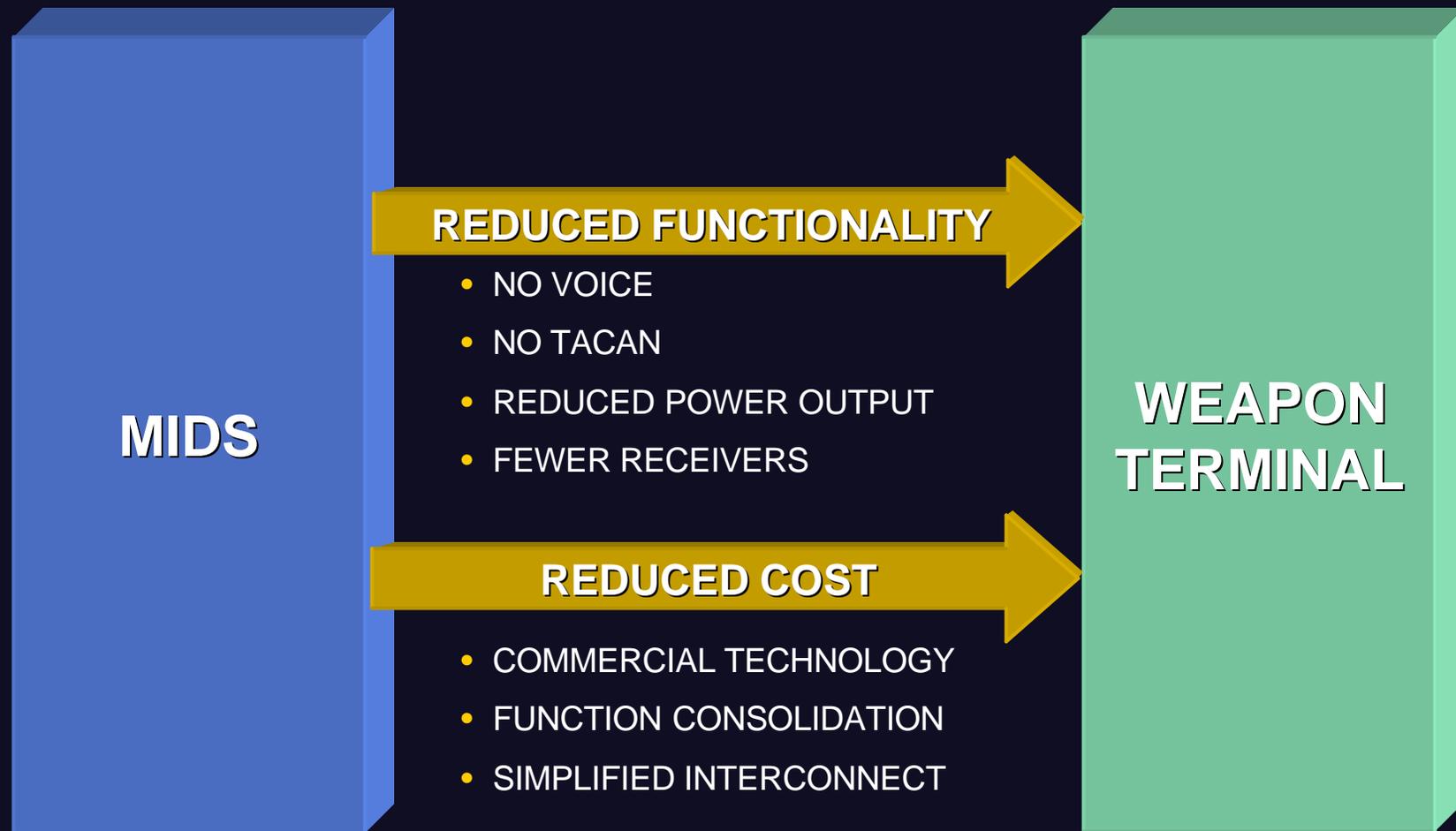


Link 16 TDMA System Architecture



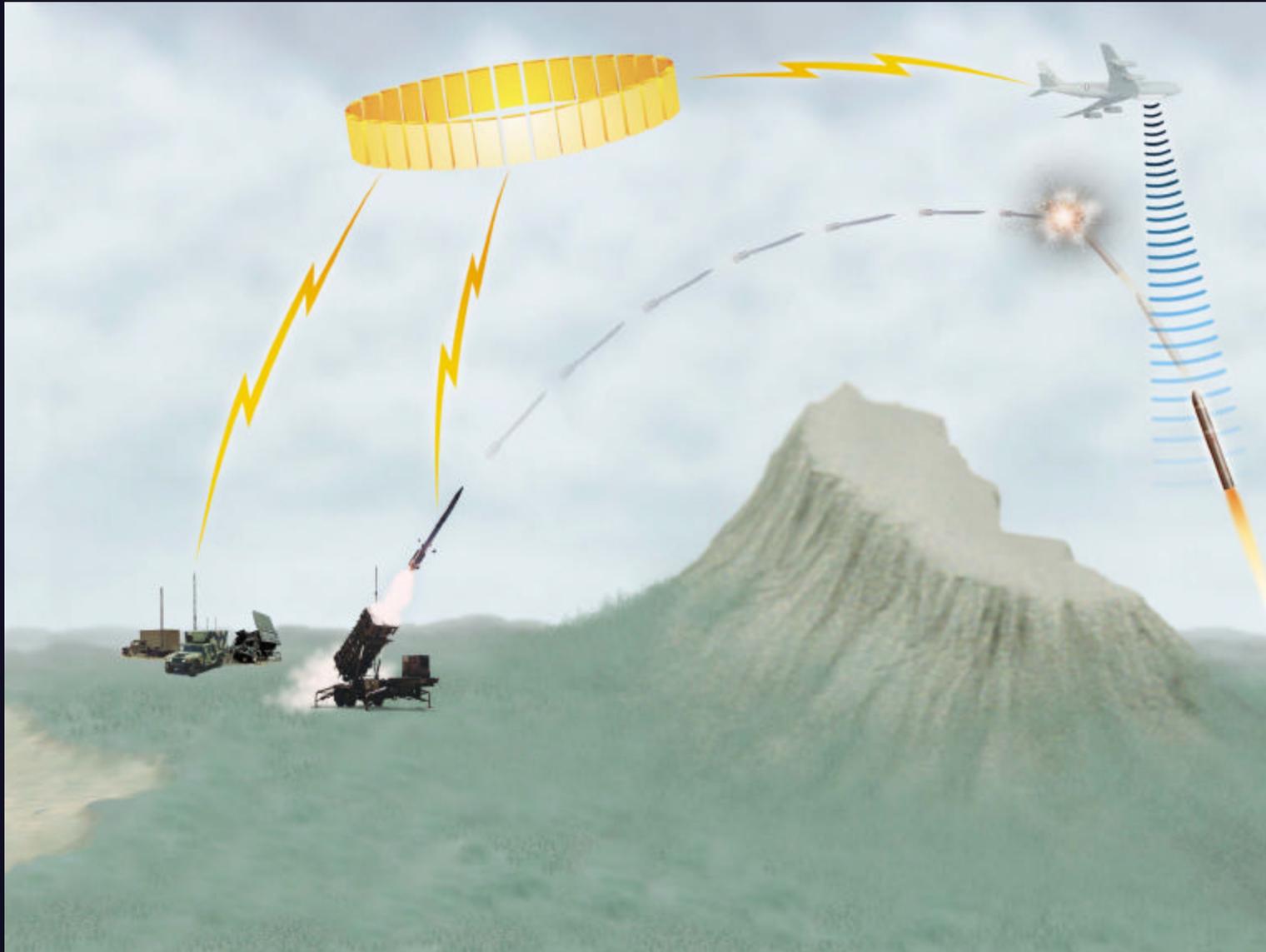
7.8125 ms per time slot
128 time slots/second/net
128 nets
98,304 time slots/12.8 min (EPOCH)

Technology Approach to Affordable Solution



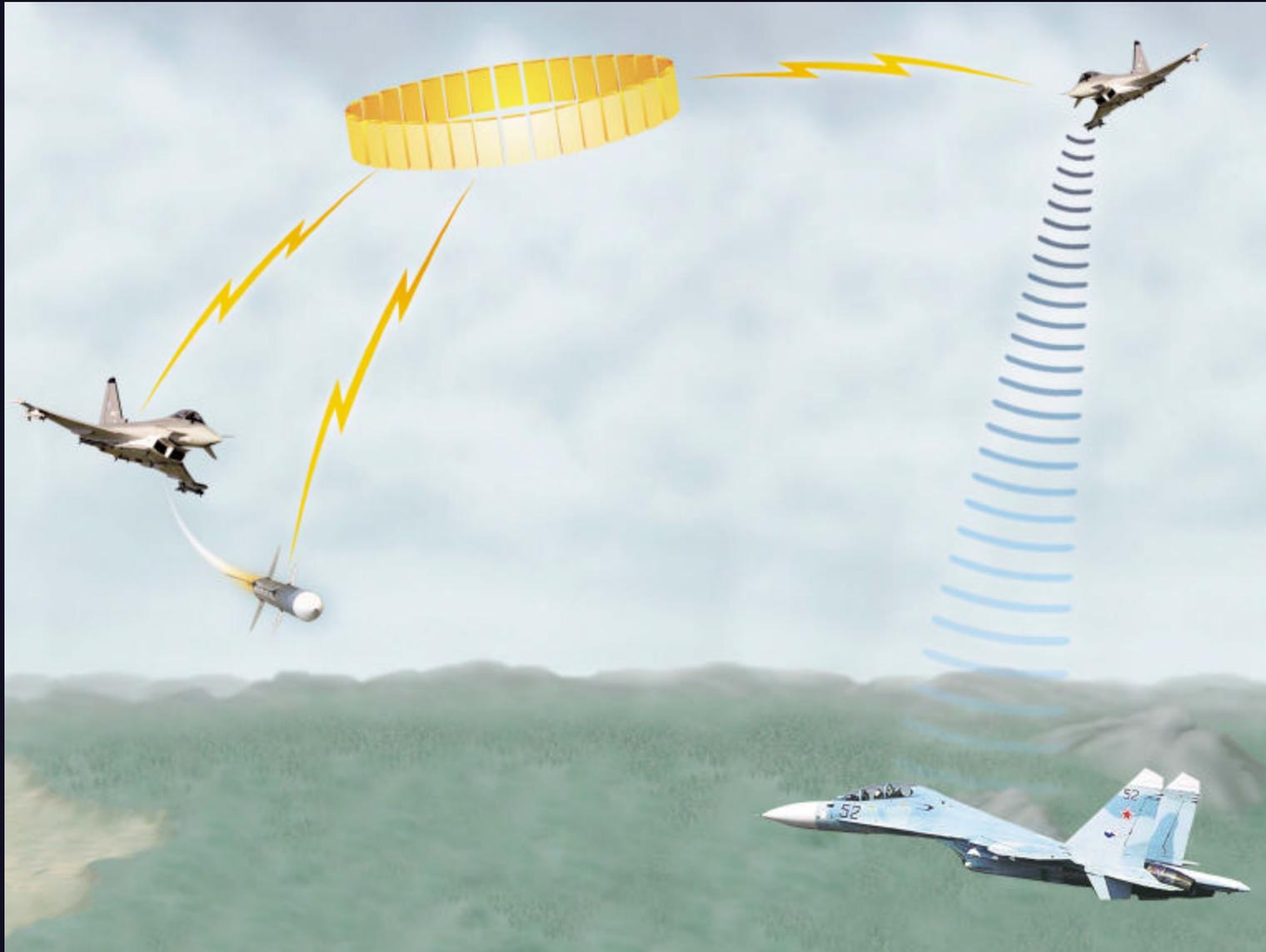
Link 16 Aids Moving Target Engagement with Non-Organic Sensor Data

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Link 16 Flexible Weapon Control

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Summary

- Link-16 is **already in place** on sensor and shooter platforms
- It provides **high performance command & control** for moving and re-locatable targets
- Its **navigation capability** is an adjunct to GPS
- An **affordable** Link-16 terminal can be built **for precision guided weapons**